The listing of claims will replace all prior versions and listing of claims in the application:

Listing of Claims

1. (currently amended) The method of evaluating a temperature related physical parameter at an internal tissue ~~a subcutaneous~~ region of an animal body, comprising the steps of:

(a) providing one or more passive resonant implants having an electromagnetic response to an extra body applied excitation electromagnetic field, said response exhibiting a predetermined resonant center frequency or frequencies when said implant is at a monitor temperature or temperatures;

(b) providing a detector assembly with an antenna, said detector having a detector output of given amplitude in response to antenna detections of said electromagnetic response at said predetermined resonant center frequency;

(c) positioning said detector assembly antenna at an extra body location effective for deriving a said detector response;

(d) positioning said one or more implants in thermal transfer relationship with said animal body region;

(e) applying said excitation electromagnetic field from an extra body location for an excitation interval effective to elicit said electromagnetic response;

(f) determining the presence of said monitor temperature or temperatures within a resonance time subsequent to said excitation interval in correspondence with said detector output; and

(g) evaluating said physical parameter in correspondence with said step (f).

2. (original) The method of claim 1 in which:

said step (a) provides one or more of said passive resonant implants, each having an electromagnetic response at a unique resonant center frequency when said one or more implants are at a said monitor temperature or temperatures, and exhibit a decrease in the intensity of said response at said unique resonant center frequency when approaching a target temperature above said monitor temperature or temperatures.

3. (original) The method of claim 1 in which:

said step (a) provides one or more said passive resonant implants as having a said electromagnetic response at a said predetermined resonant center frequency when said one or more implants are at a said monitor temperature or temperatures, and exhibit an absence of said response at said predetermined resonant center frequency when at a target temperature which is above said monitor temperature or temperatures.

4. (previously presented) The method of claim 2 in which:

said step (f) determines the presence of said target temperature subsequent to said excitation interval in correspondence with a substantial diminution of said amplitude of said detector output.

5. (original) The method of claim 1 in which:

said physical parameter is the inflammation of tissue of said body at said region.

6. (currently amended) The method of claim 1 further comprising the steps:

(h) providing a heating assembly controllable for the generation of heat at said tissue ~~subcutaneous~~ region of the body from an application component located externally of said body; and

(i) controlling said heating assembly to elevate the temperature of said tissue ~~subcutaneous~~ region in correspondence with said detector output.

7. (original) The method of claim 6 in which:

said step (a) provides one or more of said passive resonant implants as having a said electromagnetic response at a resonant center frequency when said one or more implants are at a said monitor temperature or temperatures, and exhibit a decrease in the intensity of said response at said predetermined resonant frequency when approaching a target temperature above said monitor temperature or temperatures.

8. (previously presented) The method of claim 7 in which:

said step (f) determines the presence of said target temperature subsequent to said excitation interval in correspondence with a substantial diminution of said amplitude of intensity of said detector output.

9. (original) The method of claim 7 in which:

said step (f) determines the presence of said target temperature subsequent to said excitation interval in correspondence with a decrease in the amplitude of said detector output to a value representing a predetermined ratio of instantaneous amplitude to the maximum amplitude present at said monitor temperature or temperatures.

10. (original) The method of claim 9 in which:

said predetermined ratio is within a range of about 0.2 to about 0.7.

11. (original) The method of claim 9 in which:

said predetermined ratio is within a range of about 0.3 to about 0.5.

12. (previously presented) The method of claim 1 in which:

said step (a) provides one or more of said passive resonant implants as an untethered passive resonant circuit with an inductor defining winding and core component, said core having a relative permeability characteristic exhibiting a drop in relative permeability toward a unity value at a Curie temperature occurring above said monitor temperature or temperatures and corresponding with said target temperature.

13. (previously presented) The method of claim 1 in which:

said step (a) provides one or more of said passive resonant implants as an untethered passive resonant circuit with an inductor component and a capacitor component, said capacitor component and/or said inductor component exhibiting respective capacitance values and/or inductance values corresponding with said monitor temperature or temperatures.

14. (original) The method of claim 1 in which:

said step (b) provides said interrogation assembly as deriving said detector output as a Fourier transform corresponding with said resonant center frequency.

15. (original) The method of claim 13 in which:

said step (a) provides said one or more passive resonant implants as exhibiting a substantially high Q characteristic to promote a ringing effect within said resonance time.

16. (original) The method of claim 15 in which:

said step (b) provides said detector assembly as deriving said detector output as an average of a plurality of signals corresponding with said antenna detections.

17. (currently amended) The method of claim 7 in which:

said step (a) provides a first said untethered implant having a said electromagnetic response at a first said resonant center frequency corresponding with monitor temperatures below a threshold temperature and exhibits a decrease in the intensity of said response when approaching said target temperature, and provides a second said untethered implant having a said electromagnetic response at a second said resonant center frequency different than said first resonant center frequency, corresponding with monitor temperatures below a limit temperature greater than said threshold temperature and exhibits a decrease in the intensity of said response when approaching said limit temperature;

said step (d) positions said first and second untethered implants in thermal transfer relationship with said animal body region;

said step (b) provides said detector output as a first detector output having an amplitude corresponding with said first electromagnetic response and a second detector output having an amplitude corresponding with said second electromagnetic response; and

said step (i) controls said heating assembly to elevate the temperature of said ~~subcutaneous~~ tissue region in correspondence with said first and second detector outputs and stops or diminishes said elevation of temperature in correspondence with the substantial diminution of the amplitude of said second detector output.

18. (previously presented) The method of claim 7 in which:

said step (a) provides a first said untethered implant having a said electromagnetic response at a first said resonant center frequency corresponding with monitor temperature below a threshold temperature and exhibits an absence of said response at and above said target temperature, and provides a second said untethered implant having a said electromagnetic response at a second said resonant center frequency different than said first resonant center frequency, corresponding with monitor temperatures below a limit temperature greater than said threshold temperature and exhibits an absence of said response when at or above said limit temperature;

said step (d) positions said first and second untethered implants in thermal transfer relationship with said animal body region;

said step (b) provides said detector output as a first detector output corresponding with said first electromagnetic response and a second detector output corresponding with said second electromagnetic response; and

said step (i) controls said heating assembly to elevate the temperature of said ~~subcutaneous~~ tissue region in correspondence with said first and second detector outputs and stops said elevation of temperature in correspondence with the absence of said second detector output.

19. (original) The method of claim 18 in which:

said step (b) provides said detector assembly as deriving a visibly perceptible threshold cue in the absence of said first detector output.

20. (previously presented) The method of claim 17 in which:

said step (b) provides said detector assembly as deriving a visibly perceptible threshold cue in correspondence with said substantial diminution in said amplitude of said detector output.

21. (original) The method of claim 19 in which:

said step (b) provides said detector assembly as deriving a visibly perceptible limit cue in the absence of said second detector output.

22. (previously presented) The method of claim 20 in which:

said step (b) provides said detector assembly as deriving a visibly perceptible limit cue in correspondence with said substantial diminution of the amplitude of said second detector output.

23. (previously presented) An implant system for evaluating a temperature related physical parameter at a target tissue, comprising:

an untethered passive resonant circuit containing sensor with an inductance defining core component having a relative permeability characteristic, exhibiting a drop in relative permeability toward a unity value at a Curie temperature transition occurring within a temperature range ΔT_C, said circuit being responsive to a transient applied electromagnetic field to resonate at a predetermined resonant center frequency at temperatures below said temperature range, ΔT_C and exhibiting a diminution of the intensity of said response at said resonant center frequency in correspondence with said Curie transition range.

24. (original) The implant system of claim 23 in which said sensor exhibits an absence of said response at said predetermined resonant center frequency at said Curie temperature.

25. (original) The implant system of claim 23 in which said sensor has an externally disposed surface coated with a biocompatible conformal layer.

26. (original) The implant system of claim 23 further comprising at least one tissue engaging implement fixed to and extending outwardly from said sensor and effective to engage tissue in adjacency therewith when implanted.

27. (original) The implant system of claim 23 in which said implant system further comprises:

a heater component in heat exchange relationship with said sensor and dimensioned with said sensor to effect a minimally invasive implantation at said target tissue.

28. (original) The implant system of claim 23 further comprising a thermally activatable release agent coating extending over said sensor and effective to dispense said agent at the situs of said target tissue when said target tissue is substantially at said predetermined temperature.

29. (original) The implant system of claim 27 in which said heater component is separate from said sensor and is configured for implantation within said target tissue in spaced relationship with said sensor.

30. (original) The implant system of claim 29 in which the surface of said heater component supports a thermally activatable release agent coating effective to disperse at the situs of said target tissue when said heater component is at a temperature generally corresponding with said predetermined temperature.

31. (original) The implant system of claim 29 in which said heater component is formed of a non-magnetic metal.

32. (previously presented) The implant system of claim 29 in which said heater component is formed of ultrasound absorptive material.

33. (original) The implant system of claim 29 in which said heater component further comprises at least one tissue engaging implement fixed to and extending outwardly therefrom and effective to engage tissue in adjacency therewith when implanted.

34. (original) The implant system of claim 23 in which said sensor further comprises a ferrite inductive core component exhibiting a said Curie transition within said temperature range, an inductive winding with turns wound about said core, and a capacitor coupled to define said resonant circuit with said inductive winding.

35. (original) The implant system of claim 23, further comprising:

a non-magnetic stent having a generally cylindrical configuration with an outer surface and central axis, expandable generally diametrically from an insertion diameter to luminally engage a blood vessel and formed of a material heatable from a remote, extra body heating assembly; and

at least one said sensor is coupled in thermal exchange relationship with said stent.

36. (original) The implant system of claim 35 in which:

a first said sensor exhibits a first said predetermined resonant center frequency at monitor temperatures below a first said temperature range, ΔT_{c1} ; and

a second said sensor exhibits a second said predetermined resonant center frequency different from said first predetermined resonant center frequency at monitor temperatures below a second said temperature range, ΔT_{c2} above said first temperature range.

37. (original) The implant system of claim 35 in which:

said at least one sensor component is fixed to said stent outer surface.

38. (original) The implant system of claim 37 further comprising:

a non-magnetic flexible band agalvanic with respect to said stent and surmounting said stent outer surface and said sensor, said band being generally diametrically expandable with said stent.

39. (original) The implant system of claim 37 further comprising:

a thermally activatable release agent layer supported by said stent and effective to disperse when said stent is at a temperature below or generally corresponding with said temperature range, ΔT_c.

40. (original) A method for thermally treating a target tissue within the body of a patient, comprising the steps of:

(a) determining temperature and treatment interval therapy data for carrying out said treatment of said target tissue;

(b) providing one or more passive resonant implants, each having an electromagnetic response of given intensity to an extra body applied interrogational electromagnetic field at a predetermined resonant center frequency only when said implant is at a monitor temperature or temperatures below a target temperature corresponding with said therapy data;

(c) providing a heating assembly controllable to derive an output effecting the generation of heat at said target tissue from an application component located externally of said body;

(d) providing an interrogation assembly having an antenna assembly and controllable to derive and apply said extra body interrogational electromagnetic field and having a detector output in correspondence with antenna assembly detections of said implant electromagnetic response at said predetermined resonant center frequency;

(e) locating said one or more implants at an intra-body location effective for response to temperature at the location of said target tissue;

(f) controlling said heating assembly to elevate the temperature of said target tissue;

(g) controlling said interrogation assembly to derive and apply said extra body interrogational electromagnetic field to said located one or more implants for an interrogation interval deriving said detector output; and

(h) controlling said heating assembly in correspondence with said detector output.

41. (original) The method of claim 40 in which:

said step (b) provides one or more of said passive resonant implants as having a said electromagnetic response at a predetermined resonant center frequency when said one or more implants are at a said monitor temperature or temperatures and exhibit a decrease in the

intensity of said response at said predetermined resonant center frequency when approaching said target temperature corresponding with said temperature therapy data.

42. (original) The method of claim 40 in which:

said step (b) provides one or more of said passive resonant implants as having a said electromagnetic response at a predetermined resonant center frequency when said one or more implants are at a said monitor temperature or temperatures and exhibit an absence of said response at said predetermined resonant center frequency when at said target temperature.

43. (previously presented) The method of claim 40 in which:

said step (b) provides one or more of said passive resonant implants as an untethered passive resonant circuit with an inductance defining winding and core component, said core having a relative permeability characteristic exhibiting a drop in relative permeability toward a unity value at a Curie temperature corresponding with said target temperature, said circuit resonating at said predetermined resonant center frequency in response to said applied interrogational electromagnetic field when at said monitor temperatures.

44. (previously presented) The method of claim 40 in which:

said step (b) provides one or more of said passive resonant implants as an untethered passive resonant circuit with an inductor component and a capacitor component, said capacitor component and/or said inductor component exhibiting respective capacitance and/or inductance value or values corresponding with said temperature at the location of said target tissue.

45. (original) The method of claim 40 in which:

said step (d) provides said interrogation assembly as deriving said detector output as a Fourier transform corresponding with a said predetermined resonant center frequency.

46. (original) The method of claim 45 in which:

said step (g) controls said interrogation assembly as deriving said detector output subsequent to said interrogation interval.

47. (original) The method of claim 46 in which:

said step (d) provides said interrogation assembly as deriving said detector output as an average of a plurality of said antenna assembly detections.

48. (previously presented) The method of claim 40 in which:

said step (a) determines said temperature therapy data as a temperature range extending from a threshold temperature to a limit temperature higher than said threshold temperature; and

said step (b) provides a first said untethered implant having a said electromagnetic response at a first said resonant center frequency corresponding with monitor temperatures below a said threshold temperature and provides a second said untethered implant having a said electromagnetic response at a second said resonant center frequency, different than said first resonant frequency, corresponding with monitor temperatures below said limit temperature.

49. (original) The method of claim 47 in which:

said step (g) controls said heating assembly by effecting the generation of heat at said target tissue in the presence of a said detector output corresponding with temperatures below said limit temperature.

50. (previously presented) The method of claim 40 in which:

said step (a) determines said temperature therapy data as a temperature range extending from a threshold temperature to a limit temperature higher than said threshold temperature;

said step (b) provides a first said untethered implant having a said electromagnetic response at a said resonant center frequency corresponding with temperatures below said threshold temperature, and provides a second said untethered implant as an auto-regulated heater component formed of a ferromagnetic material within a non-magnetic material, said ferromagnetic material exhibiting a Curie temperature in correspondence with said limit temperature precluding thermal response of said non-magnetic material to an applied alternating field; and

said step (c) provides said heating assembly as controllable to apply alternating current field based heat-inducing energy to said target tissue and said second implant; and

said step (e) locates said first and second implants at said intra-body location.

51. (original) The method of claim 50 in which:

said step (g) controls said heating assembly to apply said alternating field based current when said interrogation assembly is not being controlled to derive said detector output.

52. (previously presented) The method of claim 40 in which:

said step (b) provides one or more of said untethered passive resonant implants as having an electromagnetic response characteristic wherein said electromagnetic response at a predetermined resonant center frequency occurs when said one or more implants are at said monitor temperature or temperatures and said implant or implants exhibiting a decrease in the intensity of said response at said predetermined resonant center frequency when approaching a said target temperature corresponding with said temperature therapy data;

said step (c) provides said heating assembly for the generation of said heat at said target tissue by the application of at least ultrasound frequency energy from said application component;

said step (g) controls said heating assembly to apply said ultrasound energy in response to a said detector output corresponding with said electromagnetic response.

53. (previously presented) The method of claim 52 in which:

Said step (b) provides a first said untethered implant having a said electromagnetic response characteristic and a second said untethered implant as a heater component formed at least in part with ultrasound absorptive material.

54. (original) The method of claim 40 in which:

Said step (a) determines said therapy data to effect induction of therapeutic levels of heat shock protein from said target tissue volume.

55. (original) The method of claim 40 in which said step (a) determines said therapy data to effect hyperthermia therapy for the treatment of cancer.

56. (original) The method of claim 40 in which said step (a) determines said therapy data to effect thermal therapy for the repair of boney tissue.

57. (original) The method of claim 40 in which said step (a) determines said therapy data to effect induction of heat shock protein from a said tissue carrying infectious disease.

58. (original) The method of claim 40 in which:

said step (b) further comprises the step: (b1) providing one or more heating components responsive to said heating assembly output to elevate in temperature; and

said step (e) locates said one or more heating components at a said intra-body location effective for heating tissue.

59. (original) The method of claim 58 in which:

said step (b1) provides a said heating component as a stent having a generally cylindrically shaped outward luminal engagement surface;

said step (b) provides said implant as one or more temperature sensors coupled in thermal exchange relationship with said stent; and

said step (e) locates said stent and temperature sensor within a blood vessel.

60. (original) The method of claim 59 in which:

said step (b1) provides said heating component stent as further comprising a release agent material supported in thermal exchange relationship therewith and responsive to effect its dispersion to limit restenosis when said stent is at said determined temperature.

61. (original) The method of claim 59 in which:

said step (b) provides a said temperature sensor as being coupled with said stent outward luminal engagement surface.

62. (original) The method of claim 59 in which:

said steps (b) and (b1) provide said temperature sensor as being coupled with said stent with a flexible band surmounting said outward engagement surface and said temperature sensor.

63. (original) The method of claim 59 in which:

said step (a) determines said therapy data to effect hyperthermia therapy for the treatment of restenosis.

64. (previously presented) The method of claim 59 in which:

said step (c) provides said heating assembly output as an ultrasound output; and

said step (b1) provides said stent as being formed of ultrasound absorptive material.

65. (original) The method of claim 59 in which:

said step (c) provides said heating assembly output as an alternating current based field; and

said step (b1) provides said stent as being formed of non-magnetic material.

66. (previously presented) An implant system for evaluating a temperature related physical parameter at a target tissue, comprising:

an untethered passive resonant circuit containing sensor with an inductor component and a capacitor component configured as a resonant circuit, said capacitor component and/or said inductor component exhibiting respective capacitance value or values and/or inductance value or values corresponding with a temperature of said target tissue, said circuit being responsive to a transient applied electromagnetic field to resonate at predetermined resonant frequencies corresponding with said temperature or temperatures.

67. (original) The implant system of claim 66 in which:

said sensor has an externally disposed surface coated with a biocompatible conformal layer.

68. (original) The implant system of claim 66 further comprising:

at least one tissue engaging implement fixed to and extending outwardly from said sensor and effective to engage tissue in adjacency therewith when implanted.

69. (original) The implant system of claim 66 in which said implant system further comprises:

a heater component in heat exchange relationship with said sensor and dimensioned with said sensor to effect a minimally invasive implantation at said target tissue.

70. (original) The implant system of claim 66 further comprising:

a thermally activatable release agent coating extending over said sensor and effective to disperse said agent at the situs of said target tissue.

71. (original) The implant system of claim 69 in which said heater component is separate from said sensor and is configured for implantation within said target tissue in spaced relationship with said sensor.

72. (original) The implant system of claim 71 in which the surface of said heater component supports a thermally activatable release agent coating effective to disperse at the situs of said target tissue when said heater component is at a temperature generally corresponding with said predetermined temperature.

73. (original) The implant system of claim 71 in which said heater component is formed of a non-magnetic metal.

74. (previouslypresented) The implant system of claim 71 in which said heater component is formed of ultrasound absorptive material.

75. (original) The implant system of claim 71 in which said heater component further comprises at least one tissue engaging implement fixed to and extending outwardly therefrom and effective to engage tissue in adjacency therewith when implanted.

76. (original) The implant system of claim 66 in which said sensor capacitor component exhibits capacitance values varying with temperature to effect a corresponding variation of said resonant frequencies.

77. (previouslypresented) A temperature responsive untethered sensor implant for evaluating a temperature rise from a monitoring temperature or temperatures to a set point temperature comprising:

a core component exhibiting a relative permeability characteristic elevating in value with a corresponding elevation in monitoring temperatures and exhibiting a Curie temperature above said monitoring temperatures corresponding with said set point temperature;

an inductive winding with turns wound about said core component to define an inductive component;

a capacitor coupled with said inductive winding to define a resonant circuit electromagnetically excitable to have a resonating output at a select resonant center frequency and exhibiting a decrease in the intensity of said resonating output at said select resonant center frequency when at temperatures approaching at said Curie temperature.

78. (original) The implant of claim 77 in which said implant further comprises:

a non-magnetic heater component coupled in heat influencing relationship with said sensor implant at a location substantially non-interfering with said resonating output.

79. (original) The implant of claim 77 in which:

said defined resonant circuit exhibits an absence of said resonating output at said select resonant center frequency when at said Curie temperature.

80. (original) The implant of claim 77 in which:

said core component is formed of ferrite material.

81. (original) The implant of claim 77 in which:

said select resonant center frequency corresponds at least in part with the number of said turns of said inductive winding.

82. (original) The implant of claim 77 in which:

said select resonant center frequency corresponds at least in part with the value of capacitance of said capacitor.

83. (original) The implant of claim 77 in which:

said select center frequency corresponds with both the number of said turns of said inductive winding and with the value of capacitance of said capacitor.

84. (original) The implant of claim 77 in which:

said core component has an outer surface and extends along a component axis between oppositely disposed end surfaces;

further comprising a first electrically insulative sleeve having a first sleeve outer surface and located over said core component outer surface and having oppositely disposed first sleeve ends extending between or beyond said core component end surfaces; and

said inductive winding turns are wound over said sleeve outer surface.

85. (original) The implant of claim 84 in which:

a second electrically insulative sleeve having a second sleeve outer surface located over said inductive winding, having oppositely disposed second sleeve ends extending beyond said first sleeve ends.

86. (original) The implant of claim 85 in which:

said capacitor is mounted within said second sleeve between a said first sleeve end and an adjacent said second sleeve end.

87. (original) The implant of claim 86 in which:

said first and second sleeves are formed of polymeric material; and

said second sleeve is potted with a biocompatible epoxy adhesive.

88. (original) The implant of claim 86 in which said second sleeve, when potted, is coated with an electrically insulative biocompatible conformal layer.

89. (original) The implant of claim 86 in which:

said second sleeve is potted with said biocompatible epoxy adhesive wherein the outwardly disposed surface of said epoxy adhesive is disposed inwardly from at least one of said second sleeve ends to define an anchoring structure for engagement with animal tissue.

90. (original) The implant of claim 86 further comprising:

a biocompatible anchor structure configured for engagement with animal tissue mounted within and extending from at least one of said second sleeve ends.

91. (original) The implant of claim 85 in which said implant further comprises:

a non-magnetic heater component coupled in heat influencing relationship with said sensor implant at a said second sleeve end.

92. (original) The implant of claim 91 in which:

said heater component is configured as an open ended sleeve coupled at the said second sleeve outer surface.

93. (original) The implant of claim 77 in which said implant further comprises:

a thermally activatable release agent supported by said implant and effective to disperse when said implant is within tissue at or below said transition temperature.

94. (previously presented) A method for thermally treating target tissue within the body of a patient, comprising the steps of:

(a) determining temperature and treatment interval therapy data for carrying out said treatment of said target tissue;

(b) providing one or more untethered passive resonant sensor implants, each having an electromagnetic response to an extra body applied interrogational electromagnetic field at a resonant center frequency when said sensor implant is at monitor temperatures;

(c) providing one or more untethered passive auto-regulating heaters having a thermal response to an extra body applied alternating current field to elevate in temperature to a predetermined temperature or temperatures, whereat said heaters are thermally unresponsive to said applied alternating current field;

(d) providing a heating assembly controllable to derive said applied alternating current field from an application component located externally of said body effecting said thermal response;

(e) providing an interrogation assembly having an antenna assembly and controllable to derive and apply said extra body interrogational electromagnetic field and having a detector output in correspondence with antenna assembly detections of said sensor implant electromagnetic response at said monitor temperatures;

(f) locating one or more said sensor implants at an intra-body location effective for response to temperature at the location of said target tissue;

(g) locating one or more said heaters at an intra-body location effective for heating said target tissue;

(h) controlling said heating assembly to elevate the temperature of said one or more passive auto-regulating heaters;

(i) controlling said interrogation assembly to derive and apply said extra body interrogational electromagnetic field to said located one or more sensor implants for an interrogational interval deriving said detector output; and

(j) controlling said heating assembly in correspondence with said detector output.

95. (previously presented) The method of claim 94 in which:

said step (b) provides one or more of said untethered passive resonant sensor implants as having a said electromagnetic response at a predetermined resonant center frequency when said one or more sensor implants are at a said monitor temperature or temperatures and exhibit a decrease in the intensity of said response at said predetermined resonant center frequency when at temperatures approaching a target temperature condition corresponding with said temperature therapy data.

96. (previously presented) The method of claim 94 in which:

said step (b) provides one or more said untethered passive resonant sensor implants as having a said electromagnetic response at a predetermined resonant center frequency when said one or more sensor implants are at a said monitor temperature or temperatures and exhibit an absence of said response at said predetermined resonant center frequency when at a target temperature condition corresponding with said temperature therapy data.

97. (original) The method of claim 94 in which:

said step (b) provides one or more of said passive resonant sensor implants as a passive resonant circuit with an inductor component and a capacitor component, said capacitor component and/or said inductor component exhibiting respective capacitance and/or inductance value or values corresponding with said temperature at the location of said target tissue.

98. (original) The method of claim 94 in which:

said step (e) provides said interrogation assembly as deriving said detector output as a Fourier transform corresponding with said predetermined resonant center frequency.

99. (original) The method of claim 98 in which:

said step (e) provides said interrogation assembly as deriving said detector output subsequent to said interrogation interval.

100. (original) The method of claim 99 in which:

said step (e) provides said interrogation assembly as deriving said detector output as an average of a plurality of said antenna assembly detections.

101. (previously presented) The method of claim 94 in which:

said step (a) determines said temperature therapy data as a temperature range extending from a threshold temperature to a limit temperature higher than said threshold temperature;

said step (b) provides said one or more untethered passive resonant sensors having a said electromagnetic response at a said resonant center frequency corresponding with monitor temperatures below a said threshold temperature; and

said step (c) provides said one or more untethered passive auto-regulating heaters to elevate in temperature to a said predetermined temperature corresponding with said limit temperature.

102. (previously presented) The method of claim 101 in which:

said step (b) provides said one or more untethered passive resonant sensors having a said electromagnetic response at a said resonant center frequency corresponding with monitor temperatures below a said limit temperature.

103. (previously presented) The method of claim 94 in which:

said step (a) determines said temperature therapy data as a temperature range extending from a threshold temperature to a limit temperature higher than said threshold temperature;

said step (b) provides said one or more untethered passive resonant sensors having a said electromagnetic response at a said resonant center frequency corresponding with monitor temperatures below a said limit temperature; and

said step (c) provides said one or more untethered passive auto-regulating heaters to elevate in temperature to a said predetermined temperature corresponding with said threshold temperature.

104. (original) Stent apparatus for positioning within the body of a patient, comprising:

a metal stent structure having a contact surface configured for abutting engagement with tissue of said patient and formed with material responsive to energy non-invasively applied from an extra-body source to elevate in temperature; and

a first passive resonant sensor attached to said stent structure having an electromagnetic response to an extra body applied interrogational electromagnetic field at monitor temperatures.

105. (original) The stent apparatus of claim 104 further comprising:

a second passive resonant sensor attached to said stent structure having an electromagnetic response to an extra-body applied interrogational electromagnetic field when at monitor temperatures.

106. (original) The stent apparatus of claim 104 in which:

said first passive resonant sensor is responsive to said interrogational electromagnetic field at a first resonant center frequency when at said monitor temperatures and exhibits a decrease in the intensity of said response at said first resonant center frequency when at temperatures approaching a hyperthermia based first target temperature.

107. (original) The stent apparatus of claim 104 in which:

said first passive resonant sensor is responsive to said interrogational electromagnetic field at a first resonant center frequency when at said monitor temperatures and exhibits an absence of said response at said first resonant center frequency when at a hyperthermia based first target temperature.

108 (original) The stent apparatus of claim 104 in which:

said second passive resonant sensor is responsive to said interrogational electromagnetic field at a second resonant center frequency when at said monitor temperatures and exhibits a decrease in the intensity of said response at said second resonant center frequency when at temperatures approaching a hyperthermia based second target temperature.

109. (original) The stent apparatus of claim 105 in which:

said second passive resonant sensor is responsive to said interrogational electromagnetic field at a second resonant center frequency when at said monitor temperatures and exhibits an absence of said response at said second resonant center frequency when at a hyperthermia based second target temperature.

110. (original) The stent apparatus of claim 105 in which:

said first passive resonant sensor is attached to said metal stent structure contact surface.

111. (original) The stent apparatus of claim 110 in which:

said second passive resonant sensor is attached to said stent structure contact surface.

112. (original) The stent apparatus of claim 106 in which:

said second passive resonant sensor is responsive to said interrogational electromagnetic field at a second resonant center frequency when at said monitor temperatures and exhibits a decrease in the intensity of said response at said second resonant center frequency when at a temperature approaching a hyperthermia based second target temperature.

113. (original) The stent apparatus of claim 107 in which:

said second passive resonant sensor is responsive to said interrogational electromagnetic field at a second resonant center frequency when at said monitor temperatures and exhibits an absence of said response at said second resonant center frequency when at a hyperthermia based second target temperature.

114. (original) The stent apparatus of claim 113 in which:

said first passive resonant sensor is configured to exhibit said decrease in the intensity of said response when at temperatures approaching a lower threshold first said target temperature and

said second passive resonant sensor is configured to exhibit said decrease in the intensity of said response when at temperatures approaching an upper limit second said target temperature.

115. (original) The stent apparatus of claim 113 in which:

said first passive resonant sensor is configured to exhibit said absence of said response at said first resonant center frequency when at a lower threshold first said target temperature; and

said second passive resonant sensor is configured to exhibit said absence of said response at said second resonant center frequency when at an upper limit second said target temperature.

116. (original) The stent apparatus of claim 110 further comprising:

a flexible securement band agalvanic with respect to said metal stent structure and tensionally surmounting said metal stent structure and said first sensor.

117. (original) The stent apparatus of claim 111 further comprising:

a flexible securement band agalvanic with respect to said metal stent structure and tensionally surmounting said metal stent structure and said second sensor.

118. (original) The stent apparatus of claim 104 further comprising:

a thermally activatable release agent coating extending within said metal stent structure, effective to limit restenosis when dispersed at said hyperthermia based temperature level.

119. (previously presented) A system for evaluating a temperature related physical parameter at a target region of a patient, comprising:

one or more tetherless passive resonant implants located internally within said patient in thermally responsive relationship with said target region, each said implant having a unique resonant electromagnetic response within a frequency bandwidth of responses in reaction to an extra body applied electromagnetic field when said implant is at a monitor temperature or temperatures;

an excitation assembly comprising an excitation antenna positionable adjacent said patient at a location effective to derive said unique electromagnetic response, a high voltage power supply having a high voltage output, when enabled, a resonant excitation circuit coupled with said excitation antenna and responsive to an excite signal to effect generation of said applied electromagnetic field for an excitation interval;

a detector assembly comprising a sense antenna positionable adjacent said patient at a location effective, when said detector assembly is enabled, to detect said unique electromagnetic response as a sense antenna output, a bandpass filter network coupled to filter said sense antenna output in correspondence with said frequency bandwidth of responses, and an amplifier network configured to amplify said filtered sense antenna output to provide an amplified output;

a control circuit responsive to derive said excite signal for said excitation interval, subsequently responsive to enable said detector assembly to permit derivation of said amplified output;

a data acquisition and control network responsive to sample and digitize said amplified output to provide digitized waveform data, to derive frequency intensity signals therefrom about the center frequencies of each said unique resonant electromagnetic response when a said implant is at a said monitor temperature or temperatures, responsive to said frequency intensity signals and implant identification data representing a corresponding unique resonant electromagnetic response to derive implant status data; and

a readout assembly responsive to said implant status data to provide a discernable readout corresponding therewith.

120. (original) The system of claim 119 in which:

said excitation assembly further comprises a voltage monitor network responsive to said high voltage output and a voltage threshold reference to derive a voltage monitor output condition when said high voltage output is at an operating level; and

said control circuit is responsive to a start input and said voltage monitor output condition to derive said excite signal.

121. (original) The system of claim 119 in which:

said control circuit is responsive to enable said detector assembly following a delay interval occurring subsequent to said excitation interval.

122. (original) The system of claim 121 in which:

said detector assembly further comprises paired solid state enablement switches coupled intermediate said sense antenna output and said bandpass filter network having a normally de-coupling condition and gatable into a conducting condition; and

said control circuit is responsive to enable said detector assembly by effecting the gating of said enablement switches into said conducting condition.

123. (original) The system of claim 119 in which:

said detector assembly bandpass filter exhibits a bandpass from about 100 kilohertz to about 2 megahertz.

124. (original) The system of claim 119 in which:

said data acquisition and control network is responsive to average a plurality of said digitized waveforms to derive averaged digitized waveforms, and is responsive to derive

Fourier transforms of said averaged digitized waveforms to derive said frequency intensity signals;

125. (original) The system of claim 119 in which:

said readout assembly provides said discernable readout as a visibly perceptible output corresponding with each said one or more implant.

126. (previously presented) The system of claim 125 in which:

said one or more tetherless passive resonant implants exhibits a diminution of the intensity of said unique resonant electromagnetic response when at temperatures approaching a target temperature above said monitor temperature or temperatures.

127. (previously presented) The system of claim 125 in which:

said one or more tetherless passive resonant implants exhibits an absence of said unique resonant electromagnetic response when at a target temperature above said monitor temperature or temperatures.

128. (original) The system of claim 119 in which:

said detector sense antenna is flexible and is positioned upon said patient in an orientation conforming with the body shape of said patient.

129. (original) The system of claim 119 in which:

said control circuit is configured to enable said high voltage power supply in response to said excite signal

130. (previously presented) A system for thermally treating a target tissue within the body of a patient, comprising:

one or more tetherless passive resonant sensors located internally within said patient in thermally responsive relationship with said target tissue, each said sensor having a unique electromagnetic response within a frequency bandwidth of responses in reaction to an extra body applied electromagnetic field when a said sensor is at a monitor temperature or temperatures, and exhibiting a decrease in the intensity of said unique resonant electromagnetic response when approaching a target temperature above said monitor temperature or temperatures;

a heating assembly actuable to apply heat-inducing energy to said target tissue to an extent effective to elevate the temperature toward said target temperature and de-actuable to terminate said application of heat-inducting energy;

an excitation assembly comprising an excitation antenna positionable adjacent said patient at a location effective to derive said unique electromagnetic response, a high voltage power supply having a high voltage output, when enabled, a resonant excitation circuit coupled with said excitation antenna and responsive to an excite signal to effect generation of said applied electromagnetic field for an excitation interval;

a detector assembly comprising a sense antenna positionable adjacent said patient at a location effective, when said detector assembly is enabled, to detect said unique electromagnetic response as a sense antenna output, a bandpass filter network coupled to filter said sense antenna output in correspondence with said frequency bandwidth of responses, and an amplifier network responsive to said bandpass output to provide an amplified output;

a monitor control circuit responsive to derive said excite signal for said excitation interval, subsequently responsive to enable said detector assembly to permit derivation of said amplified output;

a data acquisition network responsive to sample and digitize said amplified output to provide digitized waveform data and to derive frequency intensity data therefrom about the center frequencies of each said unique resonant electromagnetic response when said implant is at a said monitor temperature or temperatures, responsive to said frequency intensity data or said absence thereof and implant identification data representing a corresponding unique resonant electromagnetic response to derive sensor status data; and

a controller, operator actuable to derive said monitor control circuit start input and having a readout assembly responsive to said sensor status data to provide a visibly perceptible corresponding therewith.

131. (previously presented) The system of claim 130 in which:

said one or more tetherless passive resonant sensors each has a said unique electromagnetic response in reaction to an extra-body applied electromagnetic field when a said sensor is at a monitor temperature or temperatures, and exhibits an absence of said unique electromagnetic response when at said target temperature; and

said data acquisition network is responsive to said frequency intensity data or the absence thereof and implant identification data representing a corresponding unique resonant electromagnetic response to derive said sensor status data.

132. (original) The system of claim 130 in which:

said controller readout comprises one or more arrays of light output components, each said light output component having an illumination state corresponding with the operating condition of a unique said sensor.

133. (original) The system of claim 130 in which:

said heating assembly is actuable to apply alternating current inductive field based thermal energy to said target tissue; and

said controller is responsive to a said data acquisition network sensor status data corresponding with a said sensor at a said monitor temperature to provide said start input for an interrogation interval and is responsive at the termination of said interrogation interval to terminate said start input and actuate said heating assembly for a heating interval.

134. (original) The system of claim 133 in which:

a said sensor is coupled with a stent positioned inter-luminally with a blood vessel.

135. (previously presented) An implant for employment in developing a thermotherapy set point temperature at a target tissue when disposed in thermal exchange therewith, comprising:

an untethered passive resonant circuit with an inductance defining core component formulated with oxides of Fe, Mn and Zn to exhibit a Curie point temperature corresponding with said set point temperature, said circuit being responsive to a transient applied electromagnetic field to resonate at a predetermined resonant center frequency at temperatures below said set point temperature.

136. (original) The implant of claim 135 in which:

said core component further comprises an oxide of CA in an amount effective to provide a core component resistivity greater than about 100 ohm-cm.

137. (original) The system of claim 135 in which:

said core component further comprises an oxide of CA in an amount effective to provide a core component resistivity greater than about 500 ohm-cm.

138. (original) The system of claim 135 in which:

said core component further comprises an oxide of CA in an amount effective to provide a core component resistivity greater than about 700 ohm-cm.

139. (previously presented) The method of claim 1 in which:

said physical parameter is the induction of apoptosis of tissue of said body at said region.

140. (Previously presented) The method of claim 1 in which:

said physical parameter is the induction of necrosis of tissue of said body at said region.

141. (Previously presented) The method of claim 1 in which:

said monitor temperature is within a range from about 39°C to about 70°C.

142. (Previously presented) The method of claim 1 in which:

said monitor temperature is within a range from about 41°C to about 50°C.

143. (Previously presented) The method of claim 1 in which:

said monitor temperature is within a range from about 42°C to about 45°C.

144. (Previously presented) The method of claim 1 in which:

said monitor temperature is within a range from about 37°C to about 41°C.

145. (Previously presented) The method of claim 1 in which:

said monitor temperature is elevated to within a range from about 4°C to about 13°C over normal temperature of the animal body.

146. (Previously presented) The method of claim 1 in which:

said monitor temperature is elevated to within a range from about 2°C to about 33°C over normal temperature of the animal body.

147. (Previously presented) The method of claim 17 in which:

said threshold temperature is about 39°C and said limit temperature is about 70°C.

148. (Previously presented) The method of claim 17 in which:

said threshold temperature is about 41°C and said limit temperature is about 50°C.

149. (Previously presented) The method of claim 17 in which:
said threshold temperature is about 42°C and said limit temperature is about 45°C.

150. (Previously presented) The method of claim 17 in which:
said threshold temperature is about 37°C and said limit temperature is about 41°C.

151. (Previously presented) The system of claim 23 in which:
said physical parameter is the induction of apoptosis of said target tissue.

152. (Previously presented) The system of claim 23 in which:
said physical parameter is the induction of necrosis in said target tissue.

153. (Previously presented) The system of claim 23 in which:
said temperature of said target tissue is within a range from about 39°C to about 70°C.

154. (Previously presented) The system of claim 23 in which:
said temperature of said target tissue is within a range from about 41°C to about 50°C.

155. (Previously presented) The system of claim 23 in which:
said temperature of said target tissue is within a range from about 42°C to about 45°C.

156. (Previously presented) The system of claim 23 in which:
said temperature of said target tissue is within a range from about 4°C to about 13°C over normal body temperature.

157. (Previously presented) The system of claim 23 in which:
said temperature of said target tissue is within a range from about 2°C to about 33°C over normal body temperature.

158. (Previously presented) The system of claim 23 wherein the target tissue is a neoplasm.

159. (Previously presented) The system of claim 23 wherein the target tissue is a tumor.

160. (Previously presented) The method of claim 40 in which:

Said step (a) determines said therapy data to effect induction of therapeutic levels of apoptosis in said target tissue volume.

161. (Previously presented) The method of claim 40 in which:

Said step (a) determines said therapy data to effect induction of therapeutic levels of necrosis in said target tissue volume.

162. (Previously presented) The method of claim 40 in which:

said step (a) determines said therapy data to effect hyperthermia therapy for the treatment of neoplasia.

163. (Previously presented) The method of claim 40 wherein the target tissue is a neoplasm.

164. (Previously presented) The method of claim 40 wherein the target tissue is a tumor.

165. (Previously presented) The method of claim 40 in which:

said elevated temperature of step (f) as being within a range from about 39°C to about 70°C.

166. (Previously presented) The method of claim 40 in which:

said elevated temperature of step (f) as being within a range from about 41°C to about 50°C.

167. (Previously presented) The method of claim 40 in which:

said elevated temperature of step (f) as being within a range from about 42°C to about 45°C.

168. (Previously presented) The method of claim 40 in which:

said elevated temperature of step (f) as being within a range from about 37°C to about 41°C.

169. (Previously presented) The method of claim 40 in which:

said elevated temperature of step (f) as being elevated to within a range from about 4°C to about 13°C over normal body temperature of the patient.

170. (Previously presented) The method of claim 40 in which:

said elevated temperature of step (f) as being elevated to within a range from about 2°C to about 33°C over normal body temperature of the patient.

171. (Previously presented) The system of claim 66 in which:

said physical parameter is carrying out an enhancement of apoptosis in said target tissue.

172. (Previously presented) The system of claim 66 in which:

said physical parameter is carrying out an enhancement of necrosis in said target tissue.

173. (Previously presented) The system of claim 66 in which:

said temperature of said target tissue is within a range from about 39°C to about 70°C.

174. (Previously presented) The system of claim 66 in which:

said temperature of said target tissue is within a range from about 41°C to about 50°C.

175. (Previously presented) The system of claim 66 in which:

said temperature of said target tissue is within a range from about 42°C to about 45°C.

176. (Previously presented) The system of claim 66 in which:

said temperature of said target tissue is within a range from about 4°C to about 13°C over normal body temperature.

177. (Previously presented) The system of claim 66 in which:

said temperature of said target tissue is within a range from about 2°C to about 33°C over normal body temperature.

178. (Previously presented) The system of claim 66 wherein the target tissue is a neoplasm.

179. (Previously presented) The system of claim 66 wherein the target tissue is a tumor.

180. (Previously presented) The implant of claim 77 in which:

said monitoring and said set point temperatures are between about 39°C and about 70°C.

181. (Previously presented) The implant of claim 77 in which:

said monitoring and said set point temperatures are between about 41°C and about 50°C.

182. (Previously presented) The implant of claim 77 in which:

said monitoring and said set point temperatures are between about 42°C and about 45°C.

183. (Previously presented) The implant of claim 77 in which:

said set point temperature is within a range from about 4°C to about 13°C over normal body temperature.

184. (Previously presented) The system of claim 77 in which:

said set point temperature is within a range from about 2°C to about 33°C over normal body temperature.

185. (Previously presented) The method of claim 94 in which:

said step (a) determines said treatment interval therapy data to effect induction of therapeutic levels of apoptosis in said target tissue.

186. (Previously presented) The method of claim 94 in which:

said step (a) determines said treatment interval therapy data to effect induction of therapeutic levels of necrosis in said target tissue.

187. (Previously presented) The method of claim 94 in which:

said step (a) determines said treatment interval therapy data to effect hyperthermia therapy for the treatment of neoplasia.

188. (Previously presented) The method of claim 94 wherein the target tissue is a neoplasm.

189. (Previously presented) The method of claim 94 wherein the target tissue is a tumor.

190. (Previously presented) The method of claim 94 in which:

the temperature of said target tissue is elevated to within a range from about 39°C to about 70°C.

191. (Previously presented) The method of claim 94 in which:

the temperature of said target tissue is elevated to within a range from about 41°C to about 50°C.

192. (Previously presented) The system of claim 94 in which:

the temperature of said target tissue is elevated to within a range from about 42°C to about 45°C.

193. (Previously presented) The system of claim 94 in which:

the temperature of said target tissue is elevated to within a range from about 37°C to about 41°C.

194. (Previously presented) The system of claim 94 in which:

the temperature of said target tissue is elevated within a range from about 4°C to about 13°C over normal body temperature of said patient.

195. (Previously presented) The system of claim 94 in which:

said temperature of said target tissue is elevated within a range from about 2°C to about 33°C over normal body temperature of said patient.

196. (Previously presented) The system of claim 119 in which:

said physical parameter is carrying out an enhancement of apoptosis in said target region.

197. (Previously presented) The system of claim 119 in which:

said physical parameter is carrying out an enhancement of necrosis in said target region.

198. (Previously presented) The system of claim 119 in which:

said monitor temperature of said target region is within a range from about 39°C to about 70°C.

199. (Previously presented) The system of claim 119 in which:

said monitor temperature of said target region is within a range from about 41°C to about 50°C.

200. (Previously presented) The system of claim 119 in which:

said monitor temperature of said target region is within a range from about 42°C to about 45°C.

201. (Previously presented) The system of claim 119 in which:

said monitor temperature of said target region is within a range from about 37°C to about 41°C.

202. (Previously presented) The system of claim 119 in which:

said monitor temperature of said target tissue is within a range from about 4°C to about 13°C over normal body temperature of said patient.

203. (Previously presented) The system of claim 119 in which:

said monitor temperature of said target tissue is within a range from about 2°C to about 33°C over normal body temperature of said patient.

204. (Previously presented) The system of claim 119 wherein the target region is a neoplasm.

205. (Previously presented) The system of claim 119 wherein the target region is a tumor.

206. (Previously presented) The system of claim 130 in which:

said thermal treatment is for carrying out of an enhancement of apoptosis in said target tissue.

207. (Previously presented) The system of claim 130 in which:

said application of heat inducting energy is sufficient to effect induction of therapeutic levels of apoptosis in said target tissue.

208. (Previously presented) The system of claim 130 in which:

said application of heat inducting energy is sufficient to effect induction of therapeutic levels of necrosis in said target tissue.

209. (Previously presented) The system of claim 130 in which:

said application of heat inducting energy is sufficient to effect hyperthermia therapy for the treatment of neoplasia.

210. (Previously presented) The system of claim 130 wherein the target tissue is a neoplasm.

211. (Previously presented) The system of claim 130 wherein the target tissue is a tumor.

212. (Previously presented) The system of claim 130 in which:

said elevated temperature as being within a range from about 39°C to about 70°C.

213. (Previously presented) The system of claim 130 in which:

said elevated temperature as being within a range from about 41°C to about 50°C.

214. (Previously presented) The system of claim 130 in which:

said elevated temperature as being within a range from about 42°C to about 45°C.

215. (Previously presented) The system of claim 130 in which:

said elevated temperature as being within a range from about 37°C to about 41°C.

216. (Previously presented) The system of claim 130 in which:

said temperature of said target tissue is elevated to within a range from about 4°C to about 13°C over normal body temperature of said patient.

217. (Previously presented) The system of claim 130 in which:

said temperature of said target tissue is elevated to within a range from about 2°C to about 33°C over normal body temperature of said patient.